

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Plant Abstract

Element Code: PDSIM03030

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Castela emoryi* (Gray) Moran & Felger

COMMON NAME: Crucifixion thorn, cascara amarga, chaparro amargosa, corona de cristo
[Spanish]

SYNONYMS: *Holacantha emoryi* Gray

FAMILY: Simaroubaceae

AUTHOR, PLACE OF PUBLICATION: *Castela emoryi* (Gray) Morn & Felger, Trans. San Diego Soc. Nat. Hist. 15(4): 40. 1968. *Holacantha emoryi* Gray, Mem. Amer. Acad. Arts Sci., n.s., 5: 310. 1854.

TYPE LOCALITY: From between Tucson and the Gila River.

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: The species *emoryi* is 1 of 2 in the genus *Castela*.

DESCRIPTION: A large sprawling, dense shrub or small tree, up to 3(-3.7) m (to 10[-12] feet) tall, with a round crown often with descending branches heavy with thorns. Gray brown bark has narrow ridges with smooth ridges. The stout twigs are blue, gray or yellow green, may be finely hairy, very rigid, up to 20 cm (8 in) long with numerous stout thorns. This is a mostly leafless plant, however when present (seedlings and young plants), leafs are alternate, narrowly ovate (scale-like), 0.25-0.5 in long. Flowers and fruits crowded on stiff, paniculate branches about 1.5-15 cm (0.6-6.0 in), the flowering branches pubescent and pinkish. The dioecious flowers are 8-9 mm wide, the petals often 7, cupped, mostly cream-yellow to greenish or rose-pink; stigmas chartreuse, the ovaries green, turning red as the petals fall. The inflorescence is a panicle, much branched, 2.5-5 cm, stiff. The male and female flowers occur on separate plants. Persistent fruit are dark brown, dry and woody (0.25 in), occurring in a circular, flat, star-shaped, persistent cluster (0.5 inch across) of seeds in groups of 5. Many of these "star" clusters occur in dense, larger clumps at the end of the twigs. The seeds may persist for several years.

AIDS TO IDENTIFICATION:

ILLUSTRATIONS: Color photo of seeds (Henriette Kress 1998, *in*
<http://www.ibiblio.org/herbmed/pictures/p03/pages/castela-emoryi.htm>)
Color photos (*in* Virginia Tech Forestry Dept. 2005-2006,

<http://www.cnr.vt.edu/dendro/dendrology/Syllabus2/factsheet.cfm?ID=487>)

Color photo (in

<http://www.calflora.net/bloomingplants/crucifixionthorn.html>)

Color photo (in

http://www.desertusa.com/magdec97/dec_pap/du_cruxthorn.html)

Color photos of branch with male flowers, and branch with fruits. (in

<http://lsvl.la.asu.edu/herbarium/treeshrub/pages/plants/casemo.html>)

Color photo (Epple, 1995: pl. 834)

Line drawing (LBH [Benson & Darrow 1945], in Felger 2000)

Color photos (L.R. Landrum, in

<http://seinet.asu.edu/collections/listDisplay.jsp>)

TOTAL RANGE: Sonoran Desert of southern Arizona and far southeastern California, south into Baja California and Sonora, Mexico.

RANGE WITHIN ARIZONA: Southern Arizona in La Paz, Maricopa, Pinal, Pima, and Yuma counties.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial shrub or small tree.

PHENOLOGY: Flowers from June to July. DesertUSA (accessed 2005 at <http://www.desertusa.com>) reports blooming period from spring to early summer.

BIOLOGY: As a mainly leafless plant, photosynthesis is conducted through the thick, rigid, sharp branches.

HABITAT: Harsh, dry, gravelly, rocky desert washes, slopes and plains in Sonoran Desert, southern Mojave Desert and Colorado Desert.

ELEVATION: 460 – 2,328 feet (140-710 m).

EXPOSURE:

SUBSTRATE: Fine-textured soils, normally on alluvial bottomlands, but frequently occurs on unstable dunes in more arid regions. Collected in valley bottom with gravelly silt/varnished pebble pavement, Maricopa County (SEINet, accessed 2005).

PLANT COMMUNITY: Sonoran Desert and Sonoran Desertscrub: mesquite-acacia shrubland, *Larrea tridentata* scrub. Associated species include: *Acacia constricta* (mesquit acacia), *A. greggii*

(catclaw acacia), *Ambrosia ambrosioides* (Ambrosia-leaf bursage), *A. deltoidea* (triangle-leaf bursage), *A. dumosa* (white bursage), *Amsinckia intermedia* (rancher's fiddleneck), *Atriplex canescens* (four-wing saltbush), *A. polycarpa* (many-fruit saltbush), *Baccharis salicifolia* (willow-leaf false-willow), *Bromus rubens* (foxtail brome), *Carnegea gigantea* (Saguaro cactus), *Chilopsis linearis* (desert-willow), *Chorizanthe rigida* (rigid spineflower), *Encelia farinosa* (white brittlebush), *Eriogonum deflexum* (skeletonweed buckwheat), *Erodium cicutarium* (redstem filaree), *Ferocactus wislizeni* (Southwestern barrel cactus), *Fouquieria splendens* (Ocotillo), *Hordeum murinum* spp. *leporinum* (Lepor barley), *Hymenoclea salsola* (white burrow-bush), *Isocoma acradenia* (golden-weed), *Koeberlinia spinosa* (crown-of-thorns), *Krameria grayi* (white ratany), *Lactuca serriola* (prickly lettuce), *Larrea tridentata* (creosote bush), *Lepidium lasiocarpum* (fairy-pod pepper-grass), *Lycium fremontii* (Fremont's desert-thorn), *Malva parviflora* (small-whorled cheeseweed), *Olneya tesota* (Ironwood Tree), *Opuntia acanthocarpa* var. *major* (buckhorn cholla), *O. engelmannii* var. *engelmannii* (Engelmann prickly-pear), *O. fulgida* var. *fulgida* (jumping cholla), *O. leptocaulis* (Desert Christmas cactus), *O. spinosior* (cane cholla), *Parkinsonia florida* (blue paloverde), *P. microphylla* (little-leaf paloverde), *Peniocereus greggii* var. *transmontanus* (desert night-blooming cereus), *Phacelia crenulata* (notch-leaf scorpion-weed), *Phalaris minor* (Mediterranean canary grass), *Pleuraphis rigida* (big Galleta), *Prosopis juliflora* (mesquite), *P. velutina* (velvet mesquite), *Psilostrophe cooperi* (white-stem paper-flower), *Schismus barbatus* (common Mediterranean grass), *Sphaeralcea* (globe-mallow), *Sisymbrium irio* (London rocket), and *Zinnia acerosa* (spiny-leaf zinnia). (ADA 1998; SEINet, accessed 2005).

POPULATION HISTORY AND TRENDS:
frequent, but not abundant in Arizona.

Unknown. Considered rare in California, and

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:
STATE STATUS:

None
Salvage Restricted (ADA, ANPL 1999)
[Salvage Restricted (ADA, ANPL 1993)]

OTHER STATUS:

None

MANAGEMENT FACTORS: The major threats are development, and slow reproduction. NatureServe (2005), reports "Branches of this plant are used medicinally and there is a local commercial market for wild-collected material (bark and twigs). Wild-collection may threaten populations that are currently considered rare in California and such activities should be monitored in Arizona where the species is frequent, but not abundant."

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS:

LAND MANAGEMENT/OWNERSHIP: BIA – Gila River Reservation; DOD – Barry M. Goldwater Air Force Range; FWS – Cabeza Prieta National Wildlife Refuge; NPS – Organ Pipe Cactus and Sonoran Desert National Monuments; San Tan Mountains Regional Park; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

Richard Felger – Tucson, Arizona.

ADDITIONAL INFORMATION:

The genus *Castela* was named after Rene Richard Louis Castel (1759-1832), a French botanist, poet and editor. The species *emoryi* was named after Maj. William Hemsley Emory (1811-1887), an Army officer and Director of the Mexican Boundary Survey.

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